

NAME: _____

DATE: _____

p1020: graded take-home open-note practice exam (version 209)**Question 1**

Let f represent a function. If $f[2] = 16$, then there exists a knowable solution to the equation below.

$$y = \frac{f\left[\frac{x}{3} - 5\right] + 32}{8}$$

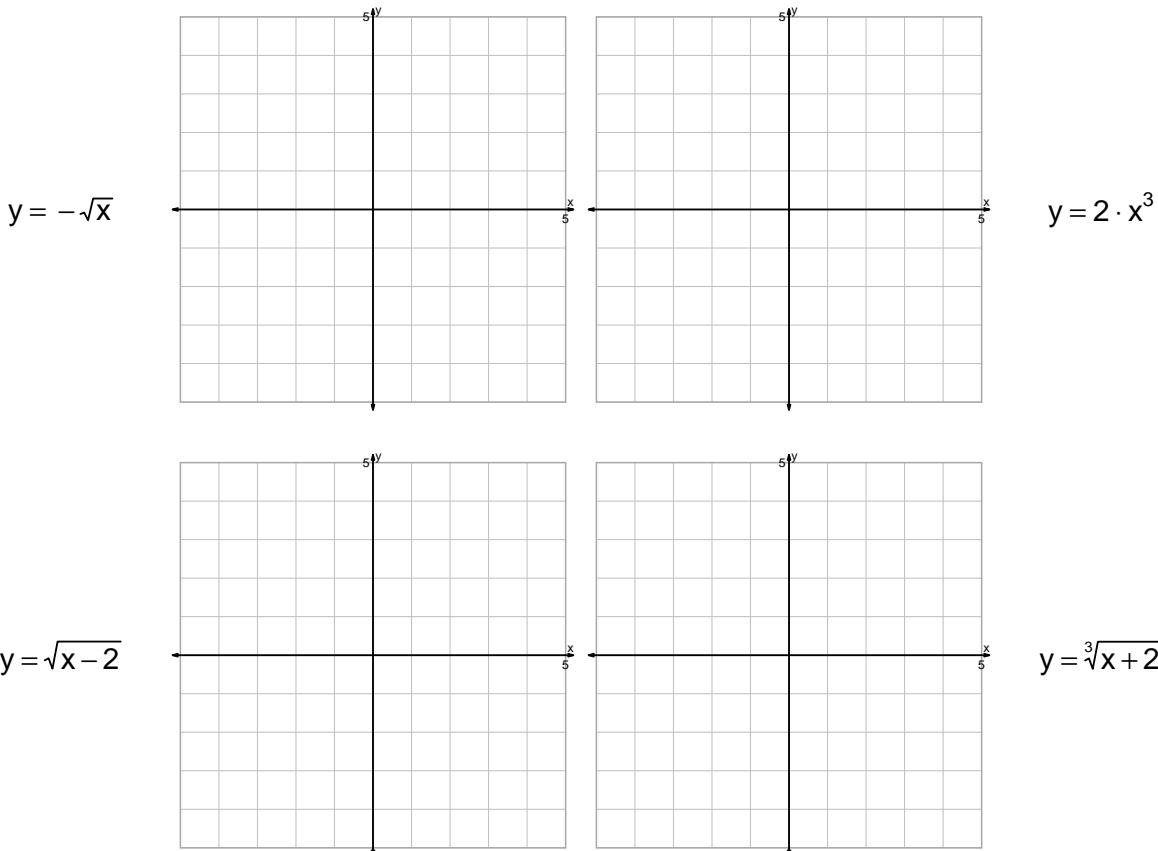
Find the solution.

$x =$

$y =$

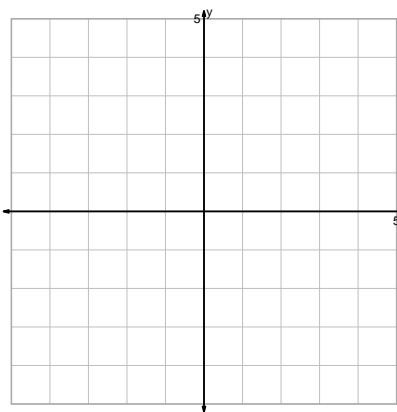
Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

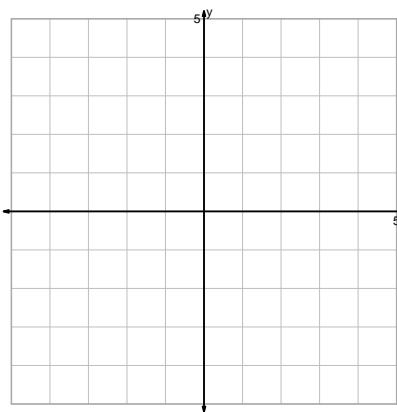


Question 2 continued...

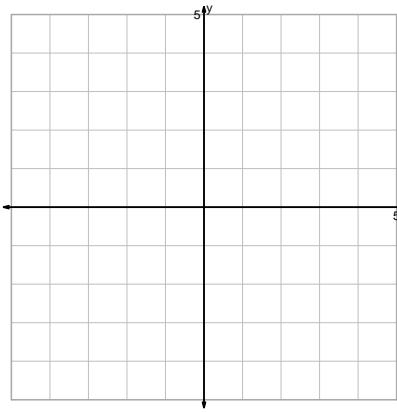
$$y = \frac{x^2}{2}$$



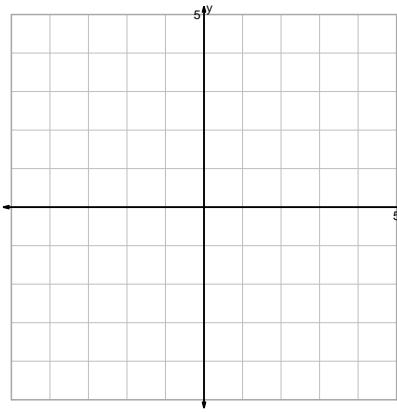
$$y = \left(\frac{x}{2}\right)^3$$



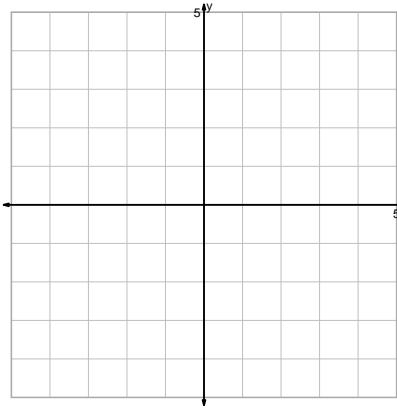
$$y = \log_2(-x)$$



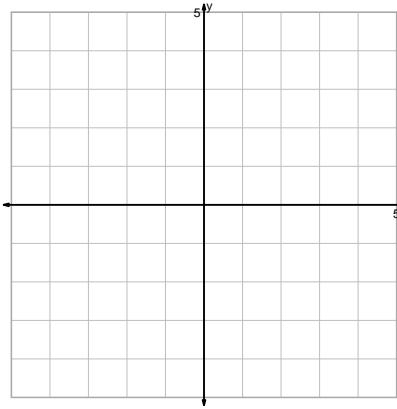
$$y = 2^x + 2$$



$$y = (2x)^2$$

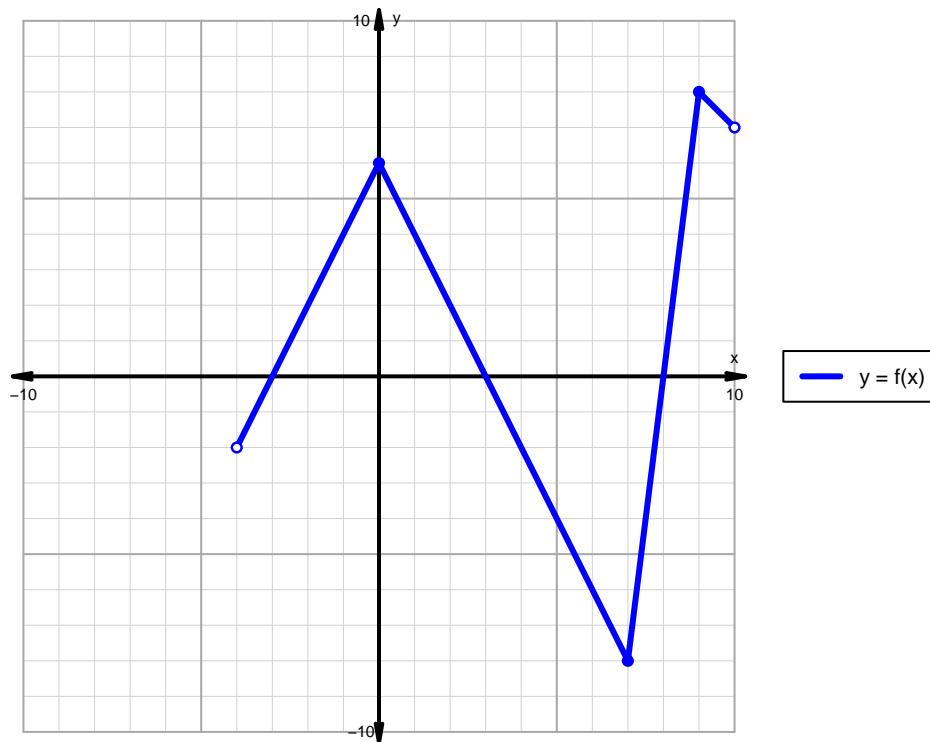


$$y = \sqrt[3]{x} - 2$$



Question 3

A function is graphed below.



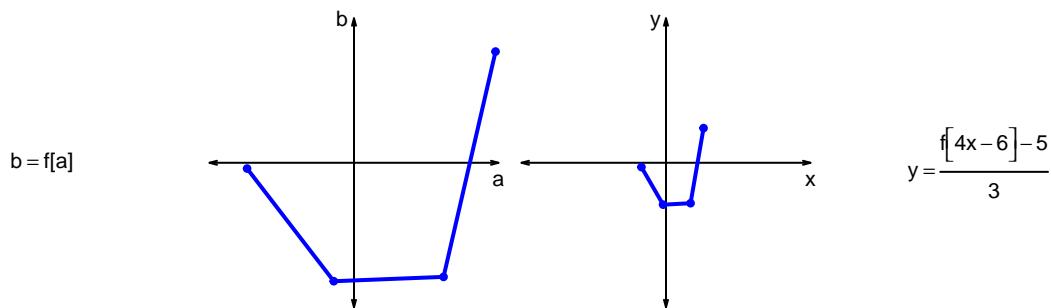
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = \frac{f[4x-6]-5}{3}$ are represented below in a table and on graphs.

a	b	x	y
-74	-4	-17	-3
-14	-82	-2	-29
62	-79	17	-28
98	77	26	24



- a. Write formulas for calculating x from a and calculating y from b . (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = \frac{f[4x-6]-5}{3}$?

Question 5

A parent square-root function is transformed in the following ways:

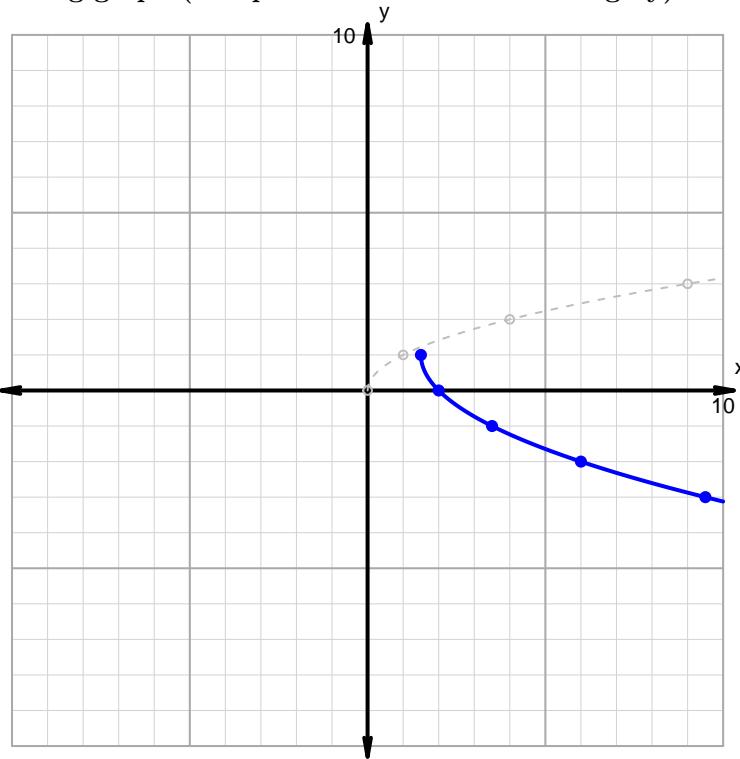
Horizontal transformations

1. Translate right by distance 3.
2. Horizontal shrink by factor 2.

Vertical transformations

1. Vertical reflection over x axis.
2. Translate up by distance 1.

Resulting graph (and parent function in dashed grey):



- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{1}{2} \cdot |x - 3| - 1$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	